NPIC/TSSG/RED-1901-69
5 November 1969

MEMORANDUM FOR : Acting Chief, Advanced Technology Branch, RED

SUBJECT : 20 October 1969 Discussions with [redacted] 25X1
Concerning Image Evaluation and Manipulation

REFERENCE : NPIC/TSSG/DED-1676-69, dated 20 June 1969

1. The visit described in the reference was concerned primarily with [redacted] 25X1 input/output equipment for image manipulation. Designed to provide optimum raster scanning input, and no-loss, high-resolution, non-photographic output, the system components were then in various stages of development. The input equipment, a modified [redacted] 25X1 microdensitometer, was then operational; however, major improvements in the "ink jet" output equipment were necessary before system performance could be tested. The latter conditions were recognized by [redacted] 25X1 and an internally supported development program had already been initiated to attain an improved prototype. The purpose of the subject visit was to review the progress to date.

2. a. No substantive changes have been made in the input scanner though refinements in its scanning rate are under investigation. [redacted] 25X1 [redacted] 25X1 has constructed an advanced (prototype) drum scanner output device. This equipment employs two ink depositing nozzles whose output is proportional to the density of the image scanned. Experiments are underway to resolve the engineering problems involved so that an eight-jet output device can be constructed within the next year. The eight-jet configuration will print 40" X 60" images in about 12 minutes with no loss in image detail when compared to the original input image. (A more complete description is attached as Attachment No. 1.)

b. Advancements have been made in the digital image manipulation software; these are discussed briefly in Attachment No. 2.

c. Some samples of the output device are included as Attachment No. 3. The image of the castle is a small portion (about 1 mm square) of the original color image. Though it may not appear sharp in a subjective sense, it should be remembered that it is magnified 125X. Visual comparison with the original indicates little loss of detail. Some experiments with color have been initiated. The results are promising.

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25X1 d. [redacted] is in the process of completing a secure [redacted] 25X1 facility. Tests of their system on operational imagery will, therefore, be considered as part of the Digital Image Manipulation program. At that time the value of the unique [redacted] system to the P.I. can 25X1 be determined. It should be remembered that this is a special purpose system, intended only for applications where very small image areas need to be manipulated to improve the information extraction process. In this sense, it could be one of several components of an automated image manipulation system.

3. On the subject of Photo-Optical Image Evaluation techniques,
25X1 [redacted] discussed recent experiments with a new three-dimensional image quality target, new improved microdensitometer optics, photographic noise specification, the effective exposure hypothesis, and microdensitometer calibration techniques. They are preparing a white paper on these topics for our consideration.

[redacted] 25X1

Chief, Image Technology Section
ATB/RED

Attachments: a/s

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